

Innovation & Technology

Application Engineering

The top priority of Foseco's experienced sales and product application team is to find opportunities for our customers to profit from our high-quality products and services. Our approach embraces all aspects of performance, from the corerroom to the boardroom.

The expert methoding support that complements Foseco products can support you with the application engineering experience of experts who have been involved in foundry processes for decades. Backed by state-of-the-art CAD-CAFIS, FEEDERCALC, FILTERCALC and simulation technologies, Foseco's technical involvement in the latest foundry practices is well known throughout the world.

Today's demands for high-quality, defect-free castings must be balanced by the need for speed and performance in the casting process. Foseco has the internal expertise to help customers make better castings more efficiently through optimized foundry processes. Our sales and technical teams know how to supplement customer knowledge in analyzing specific situations. Then, working with the foundry's personnel, they can help develop comprehensive solutions. In addition, they can draw on powerful computer programs and years of industry experience to help ensure success.

Foseco has been a leader in the development of foundry technology for over 70 years, and we continue that tradition of leadership today in foundries around the world.

Casting Process Simulation

Foseco has always been a leader and support in the field of computer simulation for foundry processes, starting with the development of SOLSTAR in the mid-1980's. Since that time, Foseco has formed a strategic alliance with MAGMA, and is exclusively using MAGMASOFT as its primary simulation tool.

At present, we have over 20 application personnel with direct access to MAGMASOFT, with plans to expand this capability significantly during the next several years. Use of the computer simulation tool enables Foseco engineers to optimize foundry processes such as gating and risering to levels not imaginable just a few years ago.

During the past several years, Foseco developed thermophysical data for our feeding system products, and pressure drop data for our filtration products. This information, combined with our specific product geometries, has been incorporated into a special module within the MAGMASOFT program called the Foseco Pro Module. Foundries that use this module are able to accurately predict both the solidification characteristics of our feeding systems products, as well as an accurate representation of the fluid dynamic performance of our filtration products.

These results can then be evaluated and used to more accurately simulate and optimize the mold filling and solidification processes. Foseco is the only foundry supplier that provides comprehensive support and service for our customers that use computer simulation tools.

Internally, Foseco also uses its computer simulation resources for product development. Feeding system designs can be engineered on the computer, and filtration concepts can be tested and optimized prior to production. This tool has enabled Foseco to make many important improvements in product performance and has led to the development of new product designs.

Foundry Application Engineering Software

Foseco is proud to offer specialized computer programs to assist the foundry engineer with gating and risering. These programs are Windows based, and combine empirical data with fundamental physics to provide quick, accurate recommendations.

FEEDERCALC is available in both Iron and Steel versions. This program allows the user to determine the size and number of feeders required for a particular casting. The user can also compare alternate scenarios. For example, the user could compare the economics of using an insulating sleeve, an exothermic sleeve or a sand riser. An entire section of the program is devoted to analyzing the costs of various methods so that the user can determine and communicate the rationale for product decisions as well.

FILTERCALC for Steel is also available to help optimize runner system designs. The program utilizes foundry specific process inputs, basic fluid flow physics and empirical capacity information to provide an accurate prediction of required filter size for a given casting application.

Product Development and Testing and Analysis

Graduate and post-graduate chemists, metallurgists, ceramists, and engineers staff the Foseco product development and analytical laboratories. U.S.-based product development facilities include pilot plant capabilities, high temperature testing, water modeling and hot modulus of rupture testing of refractories. Centers of Excellence have been established in major operating companies around the world to bring fundamental development activities closer to critical markets.

Related Case Studies:

Aluminium and other Non-Ferrous

- Pressure Cooker Case Study (98.52 KB)
- Volvo Subframe Case Study (65.46 KB)
- VW suspension Component PQ24 Case Study (55.52 KB)
- Wabco Case Study (37.42 KB)

Iron

- Plaster mold Case Study (64.48 KB)

Steel

- Ball Valve Body Case Study (53.76 KB)
- Feeding System Facts Newsletter 2 (215.78 KB)
- Filtration Software Tools Study (62.73 KB)
- Roof Node for Berlin Olympic Stadium Case Study (78.15 KB)